

6. (Amended) The device of Claim 1, wherein the polymeric balloon section assumes the expanded state when rotated by the drive shaft.

B² 7. (Amended) The device of Claim 1, wherein the expansion control system comprises internal curvilinear ribs disposed on the inside surface of the polymeric balloon section.

9. (Amended) The atherectomy device of Claim 1, wherein the polymeric balloon section is post cross-linked, the post cross-linked polymeric balloon section functioning as the expansion control system of the atherectomy device.

B³ 10. (Amended) The device of Claim 1, wherein the expansion control system comprises a first layer of fiber within the polymeric balloon section disposed in a first direction, and a second layer of fiber within the polymeric balloon section disposed in a second direction that is opposite of the first direction.

11. (Amended) A device for ablating an occlusion in a patient's blood vessel, comprising:

a drive shaft;

an ablation burr secured to the drive shaft, the burr including a nose section having a fixed maximum diameter and an expandable polymeric balloon section having an abrasive disposed on at least a portion thereof, the polymeric balloon section having a diameter that increases as the rotational speed of the drive shaft increases;

wherein the polymeric balloon section includes a system that limits the expansion of the burr to a predetermined maximum diameter.

12. (Amended) The atherectomy device of Claim 11, wherein the nose section of the ablation burr having a maximum diameter includes a stepped portion disposed at the proximal

end of the nose section and having a substantially constant diameter that is smaller than the maximum diameter of the nose section, and wherein the polymeric balloon section comprises a tube disposed over the stepped portion of the nose section.

B³ 13. (Amended) The atherectomy device of claim 12, wherein the ablation burr further includes an end section having a fixed maximum diameter, the end section of the ablation burr includes a stepped portion disposed at the distal end of the end section and having a substantially constant diameter that is smaller than the maximum diameter of the end section, the polymeric balloon section disposed over the stepped portion of the end section.

B⁴ 19. (Amended) A method for ablating a lesion or occlusion in a patient's vessel or stent comprising:

routing an ablation burr in an unexpanded state over a guide wire to a position distal to the lesion;

rotating a drive shaft to begin the expansion of the ablation burr;

creating a seal between the vessel or stent and the ablation burr by expanding the ablation burr to an expanded state;

pulling the ablation burr in an expanded state proximally toward to the lesion; and

ablating the lesion with the ablation burr as the ablation burr passes through the lesion.

B⁵ 29. (Amended) The reverse pull-back device according to Claim 28, wherein the polymeric balloon section has a distal end portion and a proximal end portion and includes a wire mesh disposed within the polymeric balloon section, the wire mesh beginning at the proximal end portion of the balloon section and extending to about the midpoint of the ablation burr so that the proximal end portion of the balloon section forms a concave shaped portion in the expanded state.

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30. (Amended) The reverse pull-back device according to Claim 29, wherein the abrasive is coated on the wire mesh in the expanded state.

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32. (New) The reverse pull-back device according to Claim 28, wherein the ablation bur forms a forward cutting surface when in the unexpanded state.

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